

IN THE CLAIMS:

Claim 1 (currently amended) An antenna for a transponder comprising a magnetic core composed of a single stack of rectangular metallic thin plates, and a coil having windings wound on said magnetic core such that said windings are arranged parallel to a greater rectangular dimension of said magnetic core.

Claim 2 (previously amended) An antenna for a transponder according to claim 1, wherein corners of said thin plates are rounded.

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Claim 3 (previously amended) An antenna for a transponder according to claim 1, wherein said thin plates comprise an amorphous magnetic material.

Claim 4 (previously amended) An antenna for a transponder according to claim 1, wherein the thickness of each one of said thin plates is 20 to 50 μm .

Claim 5 (previously amended) An antenna for a transponder according to claim 1, wherein said magnetic core comprises three to sixteen of said thin plates.

Claims 6-7 (canceled)

Claim 8 (previously amended) An antenna for a transponder according to claim 1,

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wherein said thin plates are insulated from one another by oxidizing each of their surfaces.

Claim 9 (previously amended) An antenna for a transponder according to claim 1, wherein the diameter of a conductor comprising said coil is 100 to 200 μm .

Claim 10 (original) An antenna for a transponder according to claim 1, wherein the thickness of the antenna is 0.4 mm or less.

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Claim 11 (previously amended) An antenna for a transponder according to claim 1, wherein said antenna for a transponder is a size suitable for use as at least one of an ID card, a commuter pass and a coupon ticket which operates at a frequency of 40 to 200 kHz.

Claim 12 (currently amended) A plate transponder comprising two plate antennas composed of a wound conductor on a magnetic core composed of layered metallic thin plates, and ~~in an~~ air-core antenna composed of a spirally wound conductor,

wherein said two plate antennas and said air-core antenna have respective axes which are mutually perpendicular to one another and,

wherein the air-core antenna is entirely separated from said plate antennas such that none of the wound conductors overlap.

Claim 13 (canceled)

Claim 14 (previously amended) A transponder according to claim 12, wherein said two plate antennas are provided in the plate transponder so that the axes of said coils are perpendicular to each other, and said air-core antenna composed of the spirally wound conductor is provided in the plate transponder so that the axis thereof is perpendicular to the transponder plate.

Claim 15 (previously amended) A transponder according to claim 12, wherein a magnetic recording layer is provided on the surface of the transponder, and antennas are provided inside the transponder.

Claim 16 (canceled)

Claim 17 (previously amended) A transponder according to claim 12, wherein embossment is formed on sections other than said antennas, complimentary circuits, and a magnetic recording layer.

Claim 18 (previously amended) A transponder according to claim 12, wherein said transponder is a size suitable for use as at least one of an ID card, a commuter pass and a coupon ticket which operates at a frequency of 40 to 200 kHz.

Claim 19 (currently amended) An antenna for a transponder comprising a rectangular

plate magnetic core comprising a single stack of rectangular metallic thin plates, each plate composed of a composite material of soft magnetic flakes and a synthetic resin, and a coil having windings wound on said magnetic core such that said windings are arranged perpendicular to a greater rectangular dimension of the magnetic core.

Claim 20 (previously amended) An antenna for a transponder according to claim 19, wherein the soft magnetic material composing each one of said flakes is selected from the group consisting of pure iron, silicon steel, a permalloy and an iron/cobalt amorphous alloy.

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Claim 21 (previously amended) An antenna for a transponder according to claim 20, wherein the soft magnetic material composing each one of said flakes is a cobalt amorphous alloy.

Claim 22 (previously amended) An antenna for a transponder according to claim 19, wherein each one of said flakes has a thickness of 30 μm or less and a diameter of 50 to 2,000 μm .

Claim 23 (previously amended) An antenna for a transponder according to claim 19, wherein each one of said flakes has a thickness of 10 μm or less and a diameter of 100 to 1,000 μm .

Claim 24 (previously amended) An antenna for a transponder according to claim 19, wherein said synthetic resin is selected from the group consisting of thermoset resins, including epoxy resins, phenol resins, urea resins, unsaturated polyester resins, diacrylphthalate resins, melamine resins, silicone resins, and polyurethane resins; and thermoplastic resins, including polyethylene resins, polypropylene resins, vinyl chloride resins, fluoroplastics, methacrylate resins, polystyrene resins, AS resins, ABS resins, ABA resins, polycarbonate resins, polyacetal resins, and polyimide resins.

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Claim 25 (previously amended) An antenna for a transponder according to claim 19, wherein the amount of said synthetic resin in the composite material is 3 to 50 % by weight.

Claim 26 (previously amended) An antenna for a transponder according to claim 19, wherein said flake comprises a cobalt base amorphous alloy, said synthetic resin is an epoxy resin, and the amount of said synthetic resin in the composite material is 10 to 40 % by weight.

Claim 27 (original) An antenna for a transponder according to claim 19, wherein said magnetic core has a thickness of 0.3 to 1 mm, a width of 10 to 25 mm and a length of 60 to 80 mm.

Claim 28 (original) An antenna for a transponder according to claim 19, wherein said magnetic core has a thickness of 0.3 to 1 mm, a width of 10 to 25 mm and a length of 60 to 80

mm.

Claim 29 (previously amended) An antenna for a transponder according to claim 19, wherein the diameter of a conductor comprising said coil is 100 to 200 μm .

Claim 30 (canceled)

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Claim 31 (previously amended) An antenna for a transponder according to claim 19, wherein said antenna for a transponder is a size suitable for use as at least one of an ID card, a commuter pass and a coupon ticket which operates at a frequency over 100 kHz.

Claim 32 (previously amended) An transponder comprising two plate antennas set forth in claim 19, and an air-core antenna composed of a spirally wound conductor,

wherein said three antennas have respective axes which are mutually perpendicular to one another.

Claim 33 (original) A transponder according to claim 32, wherein the axes of said two or three antennas are perpendicular to each other.

Claim 34 (previously amended) A transponder according to claim 32, wherein said two plate antennas are provided in the plate transponder so that the axes of said two coils are

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perpendicular to each other, and said air-core antenna composed of the spirally wound conductor is provided in the plate transponder so that the axis thereof is perpendicular to the transponder plate.

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Claim 35 (previously amended) A transponder according to claim 32, wherein said antenna for a transponder is a size suitable for use as at least one of an ID card, a commuter pass and a coupon ticket which operates at a frequency over 100 kHz.

Claim 36 (previously added) The antenna for a transponder according to claim 1, wherein each corner of said thin plates is reduced to form an oblique angle.
